

ISOTOPE

177

Lu

Lutetium

Lutetium-177

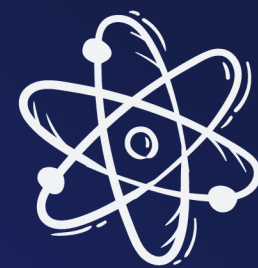
Precision Therapy
Workhorse



Feature of the Month



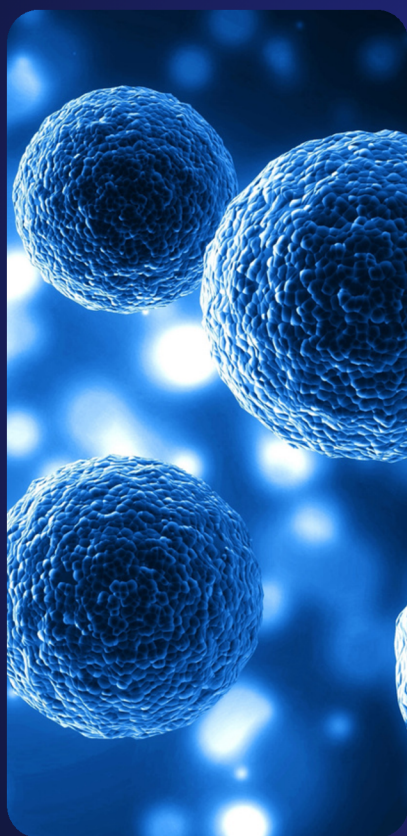
Lutetium-177



Lutetium-177 (Lu-177) is a medical isotope used in radioligand therapy to target cancer cells.



How It Works



The radioactive Lu-177 attaches to a molecule that locates tumours, delivers radiation, and helps destroy diseased cells.

Lu-177 releases beta radiation that targets tumour cells while minimizing damage to surrounding healthy tissue.



Half life of

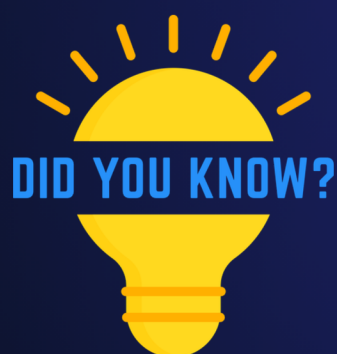
6.65 days



Canada achieved the **world's first** production of Lu-177 in a commercial power reactor in 2022



Canada has two Lu-177-radioligand therapies approved for use, **Pluvicto** and **Lutathera**



Ontario was the First Province in Canada to Provide Publicly-Funded Prostate Cancer Therapy

In December 2024, Ontario was the first province to publicly fund Pluvicto to treat metastatic prostate cancer, followed by Québec, British Columbia, Saskatchewan, Alberta, and Nova Scotia.





Lutetium-177



Unique Production Capabilities

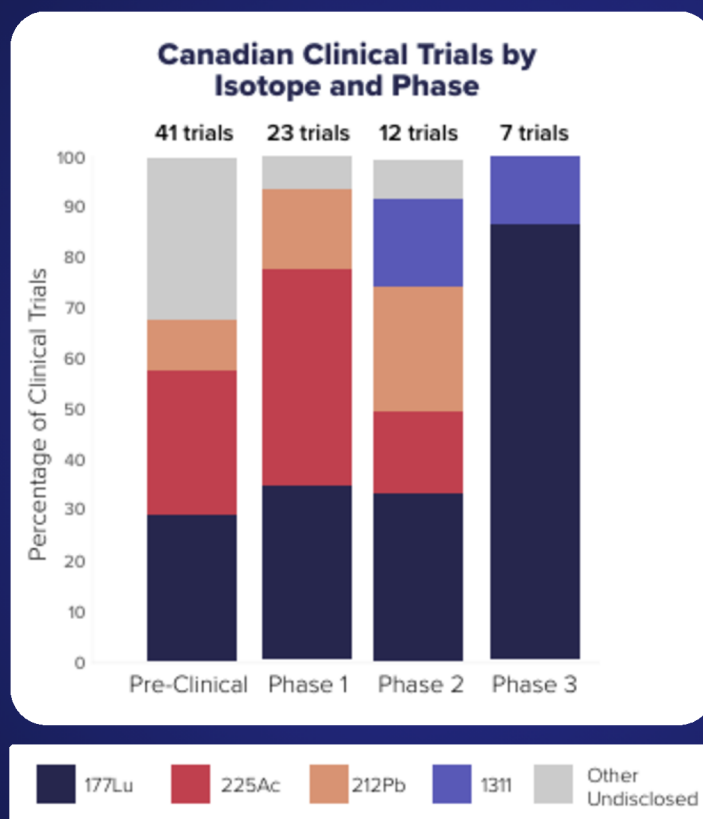
Canada has retrofitted its CANDU reactors at the Bruce Power and OPG sites for isotope production using **Isotope Production and Target Delivery Systems**. This allows the reactors to produce medical isotopes, such as Lu-177, while generating clean electricity without interruption.

Coming Soon

The OPG Darlington reactor licence has been amended by the CNSC to explore the production of Lu-177.



Advancing Cancer Care



Source: CANDU Energy, an AtkinsRéalis Company

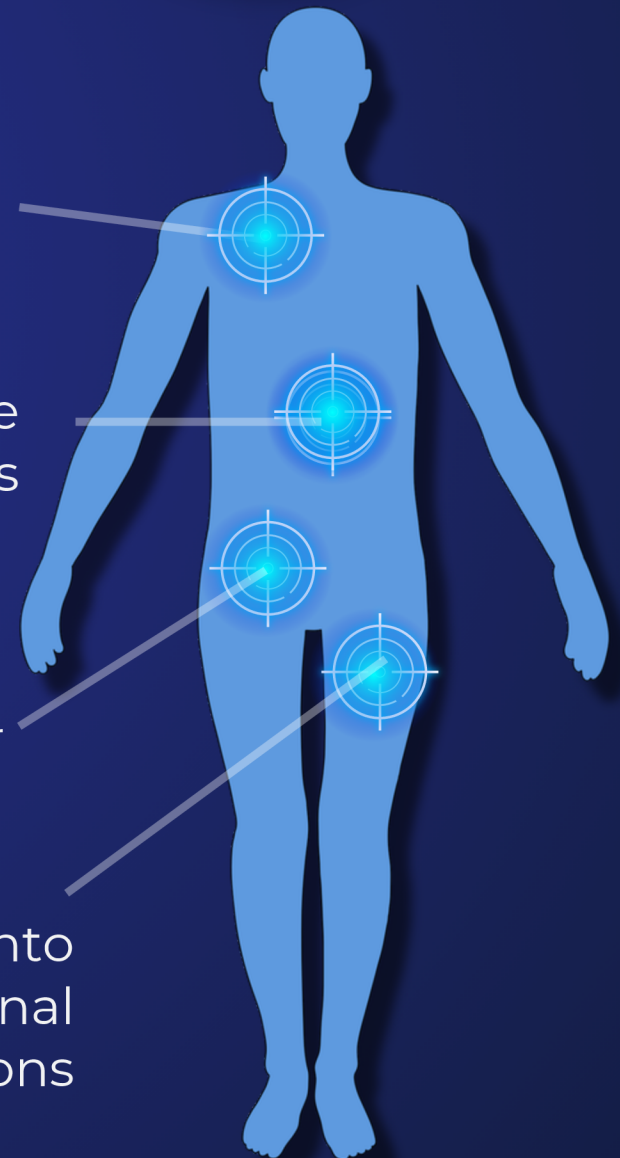
As of late 2024, **over 150 clinical trials**, including Canadian trials, are exploring the capabilities of Lu-177 to develop new life-changing drugs.

Emerging uses in oncology

Neuroendocrine tumours

Prostate cancer

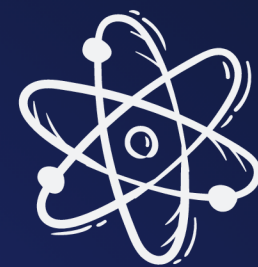
Research into additional applications



Lu-177 is recognized for its effectiveness in treating prostate cancer. It is also used for neuroendocrine tumours and is also being investigated in studies for additional applications.



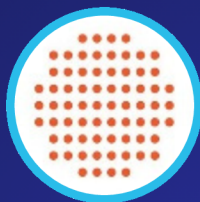
Lutetium-177



SON - Bruce Power Gamzook'aamin aakoziwin isotope partnership



Bruce Power & Saugeen Ojibway Nation (SON) established a partnership, "Teaming up to fight the sickness" to produce Lu-177.



Bruce Power, and IsoGen partnered to develop the Isotope Production System to produce Lu-177.

BrucePower

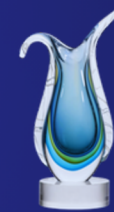
In 2022, the first production line for Lu-177 became operational.



In 2023, through funding from the Canadian Medical Isotope Ecosystem, the partnership expanded to include a second production line.



In 2026, the CNIC recognized TD Securities, Pape Salter Teillet, and McCarthy Tétrault with the Indigenous Partnership Award in recognition of their contributions to enable a \$250 million expansion to the Gamzook'aamin aakoziwin partnership.



In 2026, the CNIC recognized Pacer Precision Logistics with the Ecosystem Innovation Award for achieving three years without a single missed shipment of Lu-177 from Canada from 2022-2025.

Supporting Canada's Lu-177 Leadership



The Fedoruk Centre operates the Saskatchewan Cyclotron Facility and handles a wide range of isotopes including Lu-177 for research.



McMaster University produces Lu-177 alongside dozens of other medical and research isotopes in its nuclear reactor and cyclotron facilities.



CNL provides CRO services to support radiopharmaceutical development and preclinical testing, with expertise in the safe handling and application of a wide range of medical isotopes, including Lu-177.



AtomVie Global Radiopharma is a GMP manufacturer and global distributor of finished dose radiopharmaceutical products in Canada and 28+ countries, with experience supporting 70+ clinical development and technology transfer programs, including Lu-177 radiopharmaceuticals.



Laurentis Energy Partners and BWXT Medical Inc. developed the Target Delivery system on Ontario Power Generation's Darlington Unit 2 which will soon produce commercial Lu-177.

References

[Bruce Power. Lutetium-177](#)

[Canadian Medical Isotope Ecosystem. Bruce Power & SON Partnership Announces Major \\$250M Investment in the Commercial Production of Two Cancer-Fighting Isotopes, Lutetium-177 \(Lu-177\) and Cobalt-60 \(Co-60\).](#)

[Canada strengthens global leadership in medical isotope production](#)

[Efficacy and safety of ¹⁷⁷Lu-DOTMP in palliative treatment of symptomatic skeletal metastases: a prospective study](#)

[European Nuclear Society. The World's First Lutetium-177 Produced At Commercial Nuclear Reactor](#)

[Gamzook'aamin aakoziwin](#)

[Laurentis Energy Partners set to produce two powerful cancer-fighting isotopes](#)

[Lutetium-177 PSMA & DOTATATE Cancer Therapy Guide](#)

[Ontario First in Canada to Administer New Publicly Funded Prostate Cancer Care Treatment](#)

